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ABSTRACT

This manual is intended to provide guidelines for firms in the precast concrete industry in planning their training programs particularly with reference to new entrants into the industry. Details for preparing training syllabuses for various job specifications are given--mould makers in timber, steel, and glass fiber; makers; finishers; site erectors; inspectors; drivers of shovels, cranes, fork lift trucks, and others. An induction course for all new employees is outlined. (DM)

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Ceramics Glass and Mineral Products Industry Training Board

ED0 39507

Training Guidelines

Operatives - Precast Concrete

AC 008125

EDO 39507

GUIDELINES FOR THE PREPARATION OF TRAINING SYLLABUSES

(1) MOULD MAKER (TIMBER)

It is assumed that the operative will be a carpenter or be reasonably competent in the use of hand tools and appropriate wood-working machinery. If not then more detailed and extensive training will be required.

1. General

   (a) Properties of concrete (elementary).

   (b) Concrete products and methods of manufacture.

   (c) Methods of vibration used on different sections.

   (d) Basic principles of mould construction.

   (e) Alternative methods of mould making.

   (f) Mould design principles.

   (g) "Draw" required on tip out moulds.

2. Materials

   (a) Type of wood needed in mould construction.

   (b) Use of plywood, hardboard and plastic faced materials.

   (c) Treatment of mould faces - varnish, oil, resins, acids, etc.

3. Operational Methods

   (a) Fastenings between mould sections - bolts, clamps, toggles etc.

   (b) Composite moulds incorporating steel or glass fibre sections (it may be necessary to train in the use of these materials).

   (c) Repairs to moulds in timber and alternative materials, i.e. glass fibre, fillers etc.

   (d) Fixing for external vibrators or vibrator plates.

   (e) Dismantling and reassembly of moulds.

(f) Fixing for hoistings.

(g) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Act.

(b) Special rules regarding woodworking machinery.

(c) Good housekeeping - cleanliness.

(d) Correct lifting and carrying (manual).

(e) Fire fighting.

(f) Action in case of electric shock.

(g) Hand signals for lifting and lowering.

(2) MOULD MAKER

(STEEL)

It is assumed that the operative will already be competent in sheet metal work, welding and fitting and will have had previous training in these subjects.

1. General

   (a) Properties of concrete (elementary).

   (b) Concrete products and methods of manufacture.

   (c) Methods of vibration used on different sections.

   (d) Basic principles of mould construction.

   (e) Alternative methods of mould making.

   (f) Mould design principles.

   (g) "Draw" required on tip out moulds.

2. Materials

   (a) Fabrication of sections.

   (b) Use of castings.

   (c) Treatment of faces where required.

3. Operational Methods

   (a) Fastenings between mould sections - bolts, clamps, toggles etc. Dismantling and reassembly of moulds.

   (b) Use of dowels and "draw off" pins.

   (c) Prevention of distortion during manufacture.

   (d) Grinding and finishing mould faces.

   (e) Treatments to prevent corrosion.

   (f) Fixings for external vibrators.

   (g) Fixings for hoisting.

(h) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Care and use of protective equipment - goggles, aprons, masks, gloves, overalls etc.

(c) Fire fighting.

(d) Action in case of electric shock.

(e) Good housekeeping - cleanliness.

(f) Correct lifting and carrying (manual).

(g) Hand signals for lifting and lowering.

(3) MOULD MAKER

(GLASS FIBRE)

Previous experience in the use of this material is not often encountered and a series of exercises in proportioning, mixing and building will be required during the training period.

1. General

   (a) Properties of concrete (elementary).

   (b) Concrete products and methods of manufacture.

   (c) Methods of vibration used on different sections.

   (d) Basic principles of mould construction.

   (e) Alternative methods of mould making.

   (f) Mould design principles.

   (g) "Draw" required on tip out moulds.

2. Materials

   (a) Storage of resins and glass fibre.

   (b) Different types and uses of mat.

   (c) Proportioning materials by weight and need for accuracy.

   (d) Gel coat materials.

   (e) Pigments and fillers.

3. Operational Methods

   (a) Fastenings between mould sections
   Treatment of patterns - surface
   Dismantling and reassembly of moulds.

   (b) Release agents.

   (c) Hand lay up process.

(d) Gun lay up process.

(e) Bonding glass fibre skins to timber and steel frames.

(f) Manufacture of patterns from existing moulds.

(g) Alkaline attack on resins.

(h) Danger of softening under certain paints and thinners.

(i) Fixings for hoisting.

(j) Fixings for external vibrators.

(k) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Fire fighting.

(d) Action in case of electric shock.

(e) Good housekeeping - cleanliness.

(f) Correct lifting and carrying (manual).

(g) Hand signals for lifting and lowering.

(4) REINFORCEMENT BENDER/ASSEMBLER

Note:- There is an appreciably different level of skill required by bar benders who have to work from drawings. Elements 1(c) Reading of drawings and 3(a) Interpretation have to be taught to a higher level.

1. General

   (a) Concrete products and methods of manufacture.

   (b) Theory of reinforcement.

   (c) Reading of drawings.

2. Materials

   (a) Methods of reinforcement.

   (b) Material identification

   (c) Systems of fabrication of reinforcement.

3. Operational Methods

   (a) Interpretation of drawings and instructions.

   (b) Selection of materials.

   (c) Measuring of sections.

   (d) Cutting, cleaning and threading.

   (e) Bending and forming to template and to drawing.

   (f) Simple forging.

   (g) Jointing, wiring, bolting, cramping, spot or arc welding.

   (h) Cage assembly.

   (i) Maintenance of metal working machines.

   (j) Maintenance of welding equipment and cables.

   (k) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Fire fighting.

(d) Action in case of electric shock.

(e) Hand signals for lifting and lowering.

(f) Good housekeeping - cleanliness.

(g) Correct methods of lifting and carrying (manual).

(5) STRESSMAN

(Pre Tensioning)

1. General

   (a) Concrete products and methods of manufacture.

   (b) Pre tensioning theory (elementary).

   (c) Methods of pre tensioning.

   (d) Elementary theory of reinforcement.

2. Materials

   (a) Types of jack and power unit.

   (b) Types of anchor grip.

   (c) Types of anchor plate.

   (d) Types of tendon, wire, strand, cable etc.

   (e) Ancillary equipment.

3. Operational Methods

   (a) Wire running and winching, cleanliness of tendons.

   (b) Selection and application of jack pressure.

   (c) Anchoring of dead end.

   (d) Attachment of jacks.

   (e) Measuring tension and extension.

   (f) Anchoring jack ends.

   (g) Grouting.

   (h) Care and maintenance of equipment.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Action in case of electric shock.

(d) Never stand behind jack.

(e) Precautions against cable lash.

(f) Care of anchor grips.

(g) Correct lifting and carrying (manual).

(6) STRESSMAN

(Post Tension)

1. General

   (a) Concrete products and methods of manufacture.

   (b) Post tensioning theory (elementary).

   (c) Methods of pre and post tensioning.

   (d) Elementary theory of reinforcement.

2. Materials

   (a) Types of jack and power unit.

   (b) Types of anchor grip.

   (c) Types of anchor plate.

   (d) Types of tendon, wire, strand, cable etc.

   (e) Ancillary equipment.

3. Operational Methods

   (a) Preparation of cables, use of spacers.

   (b) Cable threading.

   (c) Anchorage assembly.

   (d) Dead end anchoring.

   (e) Attachment of strands.

   (f) Attachment of jacks.

   (g) Selection and application of jack pressure

   (h) Measuring tension and extension.

   (i) Anchoring jack end.

(j) Wire trimming - cutting and burning.

(k) Grouting.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Never stand behind jack.

(d) Precautions against cable lash.

(e) Care of anchor grips.

(f) Correct lifting and carrying (manual).

(g) Action in case of electric shock.

(7) MIXER DRIVER

(Automatic)

1. General

   (a) Properties of concrete.

   (b) Types of mix.

   (c) Unsuitable concrete and how to avoid it.

2. Materials

   (a) Types of cement and storage.

   (b) Coarse and fine aggregates and their storage.

   (c) Visual inspection of aggregates - size, particle shape, foreign matter, moisture.

   (d) Additives - types, storage, care in handling.

   (e) Materials testing, where responsible.

3. Operational Methods.

   (i) BATCHING

   (a) Types of weigh mechanisms - mechanical, electrical, electronic, pneumatic.

   (b) Order of batching and factors that cause errors.

   (c) Control of water - flow meters, weight batching, hydrobat.

   (d) Hot and cold weather precautions.

   (e) Interlocking mechanisms and simple fault finding.

   (ii) MIXING

   (a) Types of mixer and control system.

   (b) Working principles of particular mixer.

   (c) Arrangement and selection of programmes.

(d) Order receiving procedure.

(e) Operation of machine - single and multiple batches.

(f) Manual over-ride.

(g) Daily maintenance.

(h) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Special safety precautions during maintenance - machines and drive isolation and locking, warning notices, guards, props, etc.

(c) Checking feeding systems, hoist and elevators.

(d) Good housekeeping - cleanliness.

(e) Hand signals for lifting and lowering.

(f) Care and use of protective clothing and equipment.

(g) Action in case of electric shock.

(8) MIXER DRIVER

(Manual)

1. General

   (a) Properties of concrete.

   (b) Types of mix.

   (c) Unsuitable concrete and how to avoid it.

2. Materials

   (a) Types of cement and storage.

   (b) Coarse and fine aggregates and their storage.

   (c) Visual inspection of aggregates - size, particle shape, foreign matter, moisture.

   (d) Additives - types, storage, care in handling.

   (e) Materials testing, where responsible.

3. Operational Methods

   (i) BATCHING

   (a) Weight batching. Factors that cause error.

   (b) Volumetric batching - use of gauge boxes.

   (c) Order of batching.

   (d) Control of water - flow meters, volume tanks.

   (e) Adjustment for water in aggregates.

   (f) Hot and cold weather precautions.

   (ii) MIXING

   (a) Types of concrete mixer.

(b) Working principles of particular mixer.

(c) Order receiving procedure.

(d) Positioning of vehicles or skips.

(e) Machine operation:

Starting
Feeding
Discharging
Stopping

(f) Mixing time.

(g) Daily maintenance.

(h) Slinging and hooking.

4. <u>Safety</u>

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Special precautions during maintenance - machine and drive isolation and locking, warning notices, guards, props etc.

(c) Checking hoists and power shovels.

(d) Good housekeeping - cleanliness.

(e) Hand signals for lifting and lowering.

(f) Care and use of protective clothing and equipment.

(g) Action in case of electric shock.

(9) MAKER - PRODUCTS

(MACHINE)

1. General

   (a) Properties of concrete.

   (b) Concrete products and methods of manufacture.

   (c) Types of mix.

   (d) Unsuitable concrete and how to avoid it.

   (e) Elementary theory of reinforcement.

2. Materials

   (a) Visual recognition of good concrete, fresh and hardened.

   (b) Handling and use before setting starts.

   (c) Methods of reinforcement.

   (d) Types of moulding machine.

3. Operational Methods.

   (a) Changing of mould inserts
   Operation of particular machine, theory and practice.

   (b) Sequence of operation.

   (c) Oiling mould and fitting absorbent papers.

   (d) Placing measured volume of concrete.

   (e) Vibration and pressure.

   (f) Removing workpiece.

   (g) Removing papers.

   (h) Cleaning machine.

   (i) Checking for mould wear.

(j) Stacking and use of pallets.

(k) Routine maintenance and cleaning.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Dangers to skin from certain types of mould oils.

(d) Emergency stop procedure and machine isolation.

(e) Treatment for electric shock.

(f) Good housekeeping - cleanliness.

(g) Correct lifting and carrying (manual).

(h) Hand signals for lifting and lowering.

(i) Action in case of electric shock.

(10) MAKER - PRODUCTS

(MANUAL)

1. General

   (a) Properties of concrete.

   (b) Concrete products and methods of manufacture.

   (c) Types of mix.

   (d) Unsuitable concrete and how to avoid it.

   (e) Basic principles of mould construction.

   (f) Elementary theory of reinforcement.

2. Materials

   (a) Visual recognition of good concrete, fresh and hardened.

   (b) Handling and use before setting starts.

   (c) Use of different moulds.

   (d) Methods of mould fixing and jointing.

   (e) Methods of reinforcement.

   (f) Methods of vibration.

   (g) Special finishes.

3. Operational Methods

   (a) Preparation of moulds, aligning, levelling, oiling Dismantling and reassembling moulds.

   (b) Placing of special aggregates or materials for particular finishes.

   (c) Fixing of reinforcement.

   (d) Placing of concrete.

(e) Fixing of vibrators.

(f) Compaction or vibration to correct degree.

(g) Finishing off surfaces.

(h) Cover and apply heat or steam if required.

(i) Curing.

(j) Check setting times.

(k) Remove mould.

(l) Prepare workpiece for removal and stacking.

(m) Slinging, hooking, craning and stacking.

(n) Materials testing.

4. <u>Safety</u>

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective equipment.

(c) Dangers to skin from certain types of mould oils.

(d) Hand signals for lifting and lowering.

(e) Good housekeeping - cleanliness.

(f) Correct lifting and carrying (manual).

(g) Action in case of electric shock.

(11) MAKER - CAST STONE

1. General

   (a) Properties of concrete.

   (b) Concrete products and methods of manufacture.

   (c) Types of mix.

   (d) Unsuitable concrete and how to avoid it.

   (e) Basic principles of mould construction.

   (f) Elementary theory of reinforcement.

2. Materials

   (a) Properties of various sands and cements and finishing materials.

   (b) Special mixes and reconstructed stones.

   (c) Colour correction.

   (d) Visual recognition of good concrete, fresh and hardened.

   (e) Handling and use before setting starts.

   (f) Use of different types of mould.

   (g) Special mould facings, i.e. rock finish etc.

   (h) Various worked surface finishes.

   (i) Various applied surfaces.

   (j) Methods of vibration.

3. Operational Methods

   (a) Dismantling and assembling moulds.
   Preparation of moulds, cleaning.

   (b) Fixing of inserts, facing, edging, chamfering, rebating.

(c) Oiling and use of special retarders, aids etc.

(d) Placing applied surface finishes, mosaic, stone chippings.

(e) Placing surface mix.

(f) Applying main concrete body and reinforcement.

(g) Fixing of vibrators.

(h) Compaction.

(i) Curing.

(j) Stripping moulds.

(k) Cleaning surface - rubbing down, washing, acid, steam and water jets, shot and sand blasting.

(l) Pointing, trowelling and making good.

(m) Finishing.

(n) Slinging and hooking.

(o) Stacking.

(p) Materials testing.

4. <u>Safety</u>

(a) Knowledge of appropriate parts of the Factories Act.

(b) Use of protective equipment.

(c) Dangers to skin from certain types of mould oils.

(d) Hand signals for lifting and lowering.

(e) Good housekeeping - cleanliness.

(f) Correct lifting and carrying (manual).

(g) Action in case of electric shock.

(12) FINISHER

1. General

   (a) Properties of concrete.

   (b) Concrete products and methods of manufacture.

   (c) Types of mix.

   (d) Unsuitable concrete and how to recognise it.

2. Materials

   (a) Properties of various sands and cement and finishing materials.

   (b) Special mixes and reconstructed stone.

   (c) Colour correction and blending with existing work.

   (d) Various worked finishes.

   (e) Various applied surfaces.

   (f) Polished surfaces.

3. Operational Methods

   (a) Dismantling and assembly of moulds.
   Cleaning surfaces - rubbing down, washing acid, steam and water jets, shot and sand blasting.

   (b) Hand tools to obtain special finishes - bush hammering, stippling, split face etc.

   (c) Trowelled and floated finishes (plastering).

   (d) Making good.

   (e) Pointing.

   (f) Polishing.

   (g) Mosaic building (if applicable).

(h) Slinging and hooking.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Use of protective clothing.

(c) Hand signals for lifting and lowering.

(d) Good housekeeping - cleanliness.

(e) Correct methods of lifting and carrying (manual).

(f) Action in case of electric shock.

(13) STACKER AND LOADER

1. General

   (a) Concrete products and methods of manufacture.

   (b) Methods of handling and stacking in factory.

   (c) Reasons for care:

   Personal risk
   Damage
   Weathering and curing

   (d) Methods of loading and off loading lorries.

   (e) Stacking and protection of units on site.

   (f) Legal responsibilities of drivers on highways.

   (g) Factory geography.

2. Materials

   (a) Types of lifting device: crane - mobile or overhead; fork lift truck.

   (b) Safe load indicators.

   (c) Special instruction in driving, loading, stability and safety if actually operating one of these units.

   (d) Slings, chains, grabs, lifting beams, shackles - correct use and care.

3. Operational Methods

   (a) Handling units - lifting parts.

   (b) Slinging and hooking.

   (c) Spreader beams and control ropes.

   (d) Selection of stacking area.

   (e) Stack discipline, building and subsequent retrieval.

(f) Stack stability, use of supports, damage.

(g) Stock control, identification and recording systems.

(h) Use of pallet.

(i) Loading, distribution, weight, securing load.

4. Safety

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Safety in lifting and handling operations.

(c) Use of right tackle.

(d) Use of protective equipment and clothing.

(e) Hand signals for lifting and lowering.

(f) Good housekeeping - cleanliness.

(g) Correct lifting and carrying (manual).

(h) Action in case of electric shock.

(14) SITE ERECTORS

1. General

   (a) Concrete products and methods of manufacture.

   (b) Methods of handling and stacking in factory.

   (c) Reasons for care:

   Personal risks
   Damage
   Weathering and curing

   (d) Methods of loading and off loading lorries.

   (e) Stacking and protection of units on site.

   (f) Use of company vehicle - accidents, fuel etc.

   (g) Permitted hours of work, log sheets etc.

   (h) Legal responsibility of drivers on highways.

   (i) Reading of drawings.

2. Operational Methods (Site Erection)

   (a) Use of dumpy level, road and chains.

   (b) Triangulation.

   (c) Handling units - lifting parts.

   (d) Slinging and hooking.

   (e) Propping and strutting.

   (f) Jointing techniques.

   (g) In situ work and site grouting.

   (h) Site welding.

   (i) Use of mechanical lifting plants.

   (j) Grouting.

3. Safety

(a) Knowledge of appropriate parts of the Factories Acts and Building Regulations.

(b) Particular responsibilities of employee on site.

(c) Particular hazards of site work.

(d) Use of protective equipment.

(e) Ladders and staging.

(f) Hand signals for lifting and lowering.

(g) Reporting of accidents.

(h) Elementary first aid.

(i) Good housekeeping - cleanliness.

(j) Correct lifting and carrying (manual).

(k) Fire fighting.

(l) Action in case of electric shock.

(15) INSPECTORS & QUALITY CONTROLLERS

1. General

   (a) Properties of concrete.

   (b) Concrete products and methods of manufacture.

   (c) Types of mix.

   (d) Unsuitable concrete and how to avoid it.

   (e) Elementary theory of reinforcement.

   (f) Basic principles of mould construction.

   (g) Mould design principles.

   (h) Draw required on tip out moulds.

   (i) Methods of pre and post tensioning.

   (j) Methods of vibration.

   (k) Methods of handling and stacking.

   (l) Curing requirements.

   (m) Methods of loading and off loading lorries.

   (n) Factory geography.

   (o) Metric conversion

   (p) Knowledge of appropriate B.S.S.

   (q) Allowable tolerances.

   (r) Reading drawings.

2. Materials

   (a) Types of cement and its storage.

   (b) Coarse and fine aggregate and its storage.

   (c) Properties of finishing materials.

(d) Special mixes and reconstructed stones.

(e) Various finishes and applied surfaces.

(f) Various worked surfaces.

(g) Visual recognition of good concrete.

(h) Methods of reinforcement.

(i) Jacking methods and equipment.

3. Operational Methods

(a) Testing cements.

(b) Testing aggregates - size, shape, moisture content, impurities, bulking, quartering etc.

(c) Making of test cubes.

(d) Slump tests and compacting factor tests.

(e) Measuring moulds.

(f) Measuring reinforcement.

(g) Checking position of fixings, hoist, points etc.

(h) Checking vibration.

(i) Measuring tension and extension.

(j) Measuring finished units.

(k) Inspection of surfaces.

(l) Identifying structural faults.

(m) Slinging and hooking.

(n) Stacking and position of timbers.

(o) Care in handling and loading and protection in transit.

(p) Use of levels and survey equipment if involved in erection inspection.

4. Safety

(a) Knowledge of appropriate Factories Act & Building Regulations.

(b) Special rules for woodworking and other machinery.

(c) Site regulations.

(d) Safety in lifting and handling operations.

(e) Use of right tackle.

(f) Hand signals for lifting and lowering.

(g) Correct lifting and carrying (manual).

(h) Good housekeeping.

(i) Care and use of protective clothing and equipment.

(j) Fire fighting.

(k) Action in case of electric shock.

(l) Elementary first aid.

(16) DRIVER - LOADING SHOVEL

1. General

   (a) General driving ability.

   (b) Legal responsibilities of drivers on highways.

2. Materials

   (a) Capabilities and limitations of loading shovel.

   (b) Care and maintenance of shovel.

   (c) Elementary hydraulics.

   (d) Stability of piles.

3. Operational Methods.

   (a) Driving machine quickly and safely.

   (b) Digging from pile.

   (c) Loading to various hoppers.

   (d) Care of tyres.

   (e) Maintain pile and loading area clean.

   (f) Routine maintenance.

   (g) Longer term maintenance where responsible.

   (h) Winter problems: starting, driving and parking.

4. Safety

   (a) Knowledge of appropriate parts of the Factories Acts.

   (b) Good housekeeping - cleanliness.

   (c) Highway code (if roadwork involved).

   (d) Elementary first aid.

(e) Fire fighting.

(f) Hand signals for lifting and lowering.

(g) Action in case of electric shock.

(17) DRIVERS - FORK LIFT TRUCK

1. General

   (a) General driving ability.

   (b) Factory geography.

   (c) Concrete products and methods of manufacture.

   (d) Methods of handling and stacking in factory.

   (e) Methods of loading and off loading lorries.

   (f) Stacking and protection of units on site.

2. Materials

   (a) Capabilities and limitations of fork lift truck.

   (b) Care and maintenance of trucks.

   (c) Care and maintenance of batteries.

   (d) Types of fork lift truck.

3. Operational Methods

   (a) Details of truck in use.

   (b) Driving the truck, safely and obeying factory rules of road.

   (c) Loading and overloading.

   (d) Clearance and roadways.

   (e) Manoeuvrability.

   (f) Fuelling in enclosed spaces.

   (g) Reducing emission of fumes.

   (h) Stacking.

   (i) Loading and unloading lorries.

(j) Routine maintenance.

(k) Care of tyres.

4. <u>Safety</u>

(a) Knowledge of appropriate parts of the Factories Acts.

(b) Speed limits.

(c) Areas of particular hazard.

(d) Fire drill.

(e) Good housekeeping - cleanliness.

(f) Action in case of electric shock.

(18) DRIVER - DUMPER (LIGHT)

1. General

   (a) Driving ability general.

   (b) Factory geography.

   (c) Legal responsibilities of drivers on highways.

2. Materials.

   (a) Capabilities and limitations of dumpers.

   (b) Care and maintenance of dumpers.

   (c) Maintaining dumper and load clean and uncontaminated.

   (d) Stability of tips.

3. Operational Methods.

   (a) Driving dumper quickly and safely.

   (b) Loading to capacity.

   (c) Tipping.

   (d) Maintaining tip area and tip stop blocks.

   (e) Care of tyres.

   (f) Routine maintenance.

   (g) Longer term maintenance where responsible.

   (h) Winter problems, starting, driving and parking.

4. Safety

   (a) Knowledge of appropriate parts of the Factories Acts.

   (b) Propping of skip for maintenance.

   (c) Highway code.

(d) Good housekeeping - cleanliness.

(e) Fire fighting.

(f) Action in case of electric shock.

(19) CRANE AND DERRICK DRIVERS

The driving of a crane calls for a thorough understanding of the appropriate skills and knowledge. In view of the possible hazards, much of the instruction must be given away from the operational site in an area where there are no distractions and where the trainees, mistakes can have no unfortunate consequences.

It is essential therefore that the basic training of all crane drivers be given off-the-job.

It is doubtful if any companies will require to train sufficient crane drivers to justify the cost of a training crane and a full time instructor. It is recommended, therefore, that all crane driver trainees attend an external course of the type run by the Construction Industry Training Board at Bircham Newton.

When the trainee returns to the company he will then require orientation to the practices of the individual company and his in company training should include the following elements.

1. General

   (a) Concrete products and methods of manufacture.

   (b) Methods of handling and stacking in factory.

   (c) Reasons for care:

       Personal risk
       Damage
       Weathering and curing

   (d) Methods of loading and off loading lorries.

   (e) Stacking and protection of units on site.

2. Materials

   (a) Capabilities and limitations of crane.

   (b) Dimensions and clearances.

   (c) Care and maintenance.

3. Operational Methods

(a) Details of crane in use.

(b) Operation of all controls.

(c) Use of safe load indicator.

(d) Slinging and hooking.

(e) Spreader beams and control ropes.

(f) Stack discipline.

(g) Stack stability.

4. Safety

(a) Knowledge of appropriate Factories Act and Building Regulations.

(b) Special rules for cranes.

(c) Safety in lifting and handling operations.

(d) Use of right tackle.

(e) Hand signals for lifting and lowering.

(f) Location of hazard areas - clearance of power lines etc.

(g) Good housekeeping.

(h) Action in case of electric shock.

(i) Elementary first aid.

INDUCTION COURSE

(For all new employees)

General

Welcome

Programme for first few days

Who we are and what we do

Personnel

Terms of employment

Contract of employment

Rules and regulations concerning employment

Employee services

Canteen

Medical facilities

Sick and accident pay schemes

Social and sports activities

Car parking

Overalls service

Suggestions scheme

Works assurance scheme

Education and/or training facilities

Opportunities for development and promotion

Who to contact if needing help or advice

Safety

Safety in the working area

How to prevent accidents

Accident prevention committee - employee representatives

Safety equipment and protective clothing

Wearing and care of respirators, masks, goggles etc.

Good housekeeping

Control of dust

Employees obligations under the Factories Act

Pay

Make up of pay packet

Pay days, times and procedure

Explanation of pay slips

Time cards

Optional and compulsory deductions

Pay and tax queries

Incentive schemes

Shift and overtime rates

Holiday pay

Graduated pension scheme

National Insurance Cards

P45 Income Tax Forms

Advance of wages

Production

Description of products

Raw materials used and where they come from

Where the finalised goods go

Why the goods, the works and the employee are important

The company's objectives and history

The production process

The works organisation

Quality control

Implementation of orders to customer's requirements

Hours of work

Trade Unions

Complaints procedure

Works

Works geography

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OCCUPATION	Mould Maker (Timber)	Mould Maker (Steel)	Mould Maker (Fibre Glass)	Reinforcement Bender/Assembler	Stressman (Pre Tensioning)	Stressman (Post Tension)	Mixer Driver Automatic	Mixer Driver Manual	Maker Products Machine	Maker Products Manual	Maker Cast Stone	Finisher	Stacker & Loader	Site Erectors	Inspectors and Quality Controllers	Driver Loading Shovel	Driver Fork Lift Truck	Driver Dumper-Light
Properties of Concrete Elementary																X	X	X
Properties of Concrete			X			X	X	X	X	X	X							
Concrete Products and Methods of Manufacture		X	X	X	X	X	X	X	X			X	X	X	X	X	X	X
Types of Mix			X			X	X	X	X	X	X							
Visual Recognition of Good Concrete - Fresh and Hardened			X			X	X	X	X	X	X							
Unsuitable Concrete and How to Recognize it			X			X	X	X	X	X	X							
Elementary Theory of Reinforcement			X				X	X	X			X	X	X				
Methods of Reinforcement			X				X	X	X					X				
Basic Principles of Mould Construction			X				X	X							X	X	X	
Alternative Methods of Mould Making							X	X							X	X	X	
Mould Design Principles			X												X	X	X	
Draw Required on Tip Out Moulds			X												X	X	X	
Dismantling and Reassembling Moulds						X	X	X							X	X	X	
Methods of Vibration used for Different sections							X	X							X	X	X	
Methods of Attaching Vibrators							X	X							X	X	X	
Methods of Pretensioning and Post tensioning			X									X	X					

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Methods of Reinforcement				X				X	X	X					X				
Basic Principles of Mould Construction				X				X	X							X	X	X	
Alternative Methods of Mould Making								X	X							X	X	X	
Mould Design Principles				X												X	X	X	
Draw Required on Tip Out Moulds				X												X	X	X	
Dismantling and Reassembling Moulds							X	X	X							X	X	X	
Methods of Vibration used for Different sections								X	X							X	X	X	
Methods of Attaching Vibrators								X	X							X	X	X	
Methods of Pretensioning and Post tensioning				X									X	X					
Jacking Methods Attachments and Equipment													X	X					
Measuring Tension and Extension				X									X	X					
Grouting					X								X	X					
Handling Units - Lifting Parts and Fixing for Hoisting				X	X	X										X	X	X	
Slinging and Hooking				X	X	X	X	X	X		X	X			X	X	X	X	
Methods of Handling and Stacking in Factory		X		X	X	X													
Methods of Loading and off-loading Lorries		X		X	X	X													
Stacking and Protection of Units on Site		X		X	X	X													
Handling and Use Before Setting Starts								X	X	X									
General Driving Ability	X	X	X																
Legal Responsibilities of Drivers on Highways	X		X		X	X													
Care of Tyres	X	X	X																
Factory Geography	X	X		X		X													
Types of Cement & Storage				X							X	X							
Coarse and fine aggregates and their storage				X							X	X							
Visual Inspection of Aggregates				X							X	X							
Additives											X	X							
Materials Testing				X				X	X		X	X							
Properties Sand Stones Finishing Materials				X			X	X											
Special Mixes and Reconstructed Stone				X			X	X											
Colour Correction							X	X											
Various Worked Finishes				X			X	X											
Various Applied Surfaces and Special Finishes				X			X	X	X										
Knowledge of Appropriate Factory Regulations	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Good Housekeeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Correct Lifting & Carrying (Manual)				X	X	X	X	X	X	X			X	X	X	X	X	X	
Care and Use of Protective Clothing and Equipment				X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Fire Fighting	X	X	X	X	X										X	X	X	X	
Action in case of Electric Shock		X		X						X					X		X	X	
First Aid (Elementary)			X	X	X										X				
Hand signals for lifting and lowering			X	X	X	X	X	X	X	X	X	X				X	X	X	
Danger to skin from mould oil							X	X	X	X									

IDENTIFICATION OF COMMON GROUND

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